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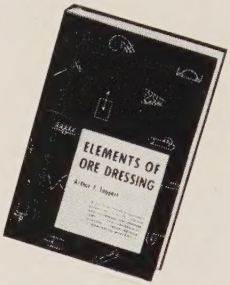

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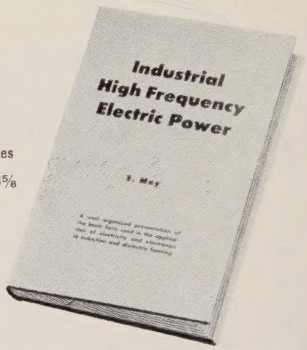

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N.B. We purposely postponed this issue of Professional Engineer so that it would reach our members after their summer vacations, when more reading time is available. Hope you will find this Special Book Number interesting and helpful.

M. E. McIVER, Editor

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ered as second-class matter May 5, 1933, at the Post Office at Chicago, Illinois, under the Act f March 3, 1879. Acceptance for mailing at the special rate of postage provided for in section 103, Act of October, 1917, authorized August 9, 1918. Subscription price, U. S., $1.00 a year anada, $1.50; foreign, $2.00. Printed in U.S.A.

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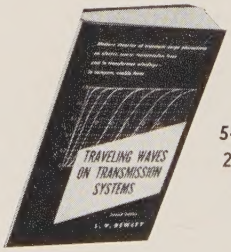

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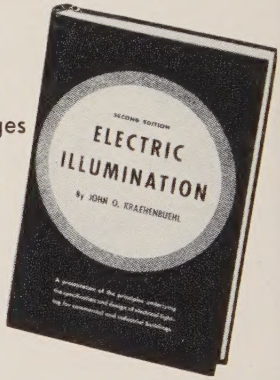

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Building and Growing
1915 — 1951

TWO factors may have been equally potent in the quick and generous response of A.A.E. members to Edmund J. Fitzmaurice's letter dated March 31st. It announced the opening of A.A.E.'s campaign to raise funds for erection of an engineers' Memorial Building, which would at the same time serve as a permanent home for the association in Chicago. The response, I think, evidenced first the membership's sincere appreciation of Mr. Fitzmaurice's great services to the Association. No man has served this organization longer or more unselfishly than Edmund J. Fitzmaurice. I believe that the response also proved our members eager to fulfill the dreams of those who founded the organization and to establish for the Association something more than a mere headquarters—a home.

It is a thoroughly American yearning. Many historians attribute this nation's strength to its citizens' almost universal desire to "own their homes." All the philosophies of the Declaration of Independence and the Constitution are embodied and made real for us in our actual ownership of a bit of American soil with a structure on it which we can call "home." We don't pay taxes and fight for abstractions. We perform our duties as citizens in defense of the rights and privileges which center in our homes.

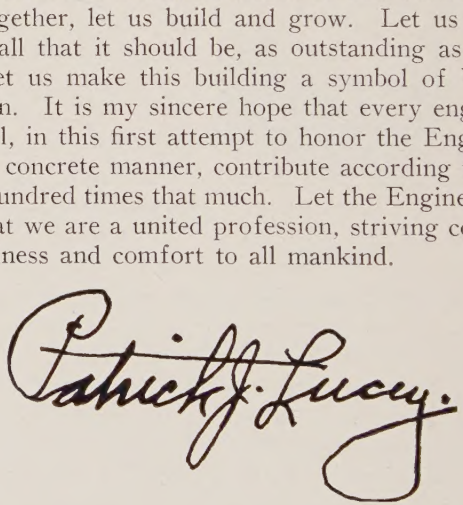
Some of that feeling must carry over into an organization as essentially fraternal as A.A.E. It was strong in the hearts of the Association's founders. Old timers still refer to the organization's first secretary, Arthur Kneisel, as "Twenty Story." He was wholly resolved that A.A.E. should build a home of those dimensions. We are ready to settle for one of much more modest physical proportions, but it will be the same edifice that Kneisel dreamed of insofar as its functions and meaning are concerned. Height is not one of the accepted criteria. "Too low they build, who build beneath the stars," said Edward Young in "Night Thoughts." We agree. Our building must, whatever its physical dimensions, extend well above the stars to match purposes of Arthur Kneisel and Edmund J. Fitzmaurice, Dr. F. H. Newell, W. H. Finley, Dr. D. B. Steinman, W. W. DeBerard, Herman Wagner, and all the other wonderful men who have given of their time and efforts to further the objectives of the Association.

It shall be as great as the men it honors; all the thousands of unsung engineers who have contributed to America's greatness by doing their essential but relatively obscure work for the safety and convenience and general well-being of mankind. It shall be an acknowledgment of the faith and loyalty of the engineers who have unwaveringly supported the Association's fight to "promote the social and economic welfare of the Engineer."

It shall remind us constantly that A.A.E. members have worked unselfis to establish conditions in which engineers can do their best work. We ha answered, through the years, to the best of our ability and with all o resources, Edwin Markham's poignant question:

Why build these cities glorious
If man unbuilded goes?
In vain we build the world, unless
The builder also grows.

In building A.A.E. we have ourselves grown. I know that, in m contact with some of our staunch A.A.E. men, I have been helped towa professional maturity. I have been inspired by the thought that I a working with thousands more such men whom I have not had the privile of meeting, but whose loyalty to A.A.E. is of the same pure quality. I a sure that you too are conscious of the kind of growth I have experience as you have found opportunity to serve A.A.E. That feeling will be acu as you play your part in the new A.A.E. project. Your contribution m be a nominal one from a dollars and cents standpoint, but it will be gre as it insures our utter unanimity in this undertaking. Ours must be building in which every member owns a share because he has contribute according to his ability. Together, let us build and grow. Let us ma this Memorial to Engineers all that it should be, as outstanding as the contributions to Society. Let us make this building a symbol of Uni in the Engineering Profession. It is my sincere hope that every engine in this great land of ours will, in this first attempt to honor the Engine and his noble profession in a concrete manner, contribute according to h means, a one dollar bill, or a hundred times that much. Let the Engineerin profession show the world that we are a united profession, striving contin uously to bring greater happiness and comfort to all mankind.



President, American Association of Engineers.

Lessons from Asia

By Captain R. deCharms, Member, A.A.E.

THE Fifty-fifth Annual Meeting of the American Academy of Political and Social Science held in Philadelphia April 6 and 7, 1951, was of interest to engineers because of the emphasis put on changes in world conditions. These changes are making engineering development vital in military expansion to preserve peace and to promote industrial advancement in Asia. The general topic of the meetings was "Lessons from Asia." The discussion was divided into six sessions in two days with three speakers at each session. Each address was given by an authority in his field and the speakers were evidently picked to represent the present day thinking and the conditions in principal sections of Asia. Most of the speakers had made recent visits to the countries they described. All sides were presented as was shown when the Permanent Representative of Poland to the United Nations introduced Russian tactics of long winded incrimination of the Western Powers. It created a stir in one of the meetings and received much newspaper and radio comment.

Asia presents such a confused picture that to most Americans it seems too far away to warrant a detailed study of the historic, geographic, political, and religious backgrounds. However, the events of the past few years make Asia the center of world interest. Geographically Europe and Asia are one continent but are separated by differences of religion and culture. As a result of Western imperialism many Asiatic countries became colonies of European powers and were so enslaved that it will take several generations to overcome the hatred enkindled. In the Russo-Japanese War in 1907 a European power was defeated and the hope of liberation was given to the other nations. Since World War II the Philippines and India have been given their independence but they are finding that they must have more than political freedom for unity and prosperity. The conditions of the masses have not improved and they are impatient. Advance in living standards requires engineering development and this has not kept pace with political changes.

Culturally Asia may be divided into the Mongolian block of China, Japan and Indo-China; the Hindoo block of India and Pakistan; the Semitic block from south west Pakistan to the Jordan; and the Soviet Union in the North and central sections. China is considered an agricultural country

Captain R. deCharms represented the American Association of Engineers at the Fifty-fifth annual meeting of The American Academy of Political and Social Science held in Philadelphia last April, and Capt. deCharms gives us a brief summary of his impressions, which we are pleased to pass on to our members.

but only 37% of the land is arable as compared with 51% in the United States. 60% of this land has to be irrigated and is over populated and under capitalized. The average farm is three acres and the population is so great that there is only 0.7 of an acre per capita. For this reason the land distribution is a major problem. For three and a half centuries one half of the land was in private ownership but now nine tenths is in the hands of absentee owners who keep the peasants impoverished. The Communists have taken advantage of this and promised redistribution of the land to the peasants. They are not solving the problem because the standard of living will be lowered unless modern methods are introduced to increase production.

India has gone through a siege of colonialization by Portugal, France and England. Russia under Nicholas I in the Crimean War tried to take India as a blow to Great Britain. Since the country has gained independence insufficient progress has been made to meet the expectation of the masses. The conflicting races and religions are causing great unrest. A study, being made, of social tensions described the people as being affectionate, asthetic, tolerant, brilliant and willing to borrow ideas without objection.

The Philippines are a part of Asia. They were under Spain for three hundred years and under the United States for fifty years. An attempt was made by the United States to prepare them for their independence. Five years ago everything was propitious but in the economic and industrial fields there has not been much progress and freedom from want was slowest to come. Therefore there is unrest and the masses are looking favorably toward Communism.

The Middle East includes eleven countries around the eastern Mediterranean. Greece, Turkey, Iran and Egypt are the largest. Most of these countries border on Russia. Three religions, Judaism, Mohammedanism and Christianity started in this territory. Political influence has changed history as all conquests have looked to the Middle East as the meeting point of three continents. Since World War II it is still the center of gravity of world conquest. The United States was brought into the picture by the Truman Doctrine and has been giving aid to Greece, Turkey and Iran. Turkey is the key to the situation because she is adjacent to Russia on the South. Her 21,000,000 Turks would resist any attempt to interfere with Turkish independence. The terrain is also a barrier between the two countries. Last year's elections showed that there is practically no Communistic pressure within Turkey. The Turks have kept their armies since the war and they have proved their allegiance to the Western World by their troops in Korea. They desire to join the Atlantic Pact. The United States has peace time interests in the Middle East because of oil production. One half of the oil of the world and sixty-three per cent of the oil consumed in this country comes from the Middle East. Russia has no large oil resources and possession of this territory would make her self

ufficient. Economic conditions in Iran are critical because the wealth of 5,000,000 people is owned by one per cent of the population and the rest re very poor. As the wealth increases the poverty of the peasants bemes greater and there is greater unrest.

The Red shadow of Soviet Russia falls over three continents. The onfused state of Asia is aggravated by the fact that Russia is taking adantage of the unrest to promote Communism. Russia is attempting to nnex these countries either peaceably or by military force. Against this ne Western nations are trying to preserve peace and help create a better orld for the common people. The engineer is an essential part of this rogram. Asia presents a challenge to create a new world where modern eans of transportation, water supply, sanitation and physical power delopment can bring the long needed changes.

Civil Engineering First Taught at Norwich University

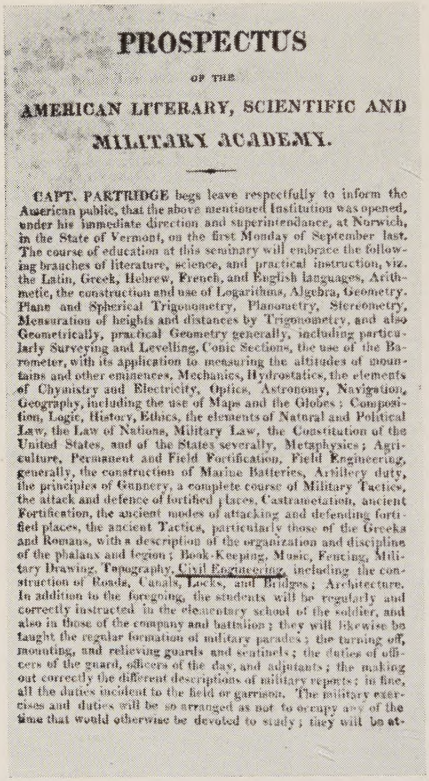
David L. Snader, M. ASCE

Head, Civil Engineering Department, Norwich University, Northfield, Vt.

NORWICH UNIVERSITY, which has been in continuous existence for 130 years, was the first educational institution in the United States to ffer formal organized courses in civil engineering. Though there have een some changes in its name and location, as is true of numerous other ell-known colleges and universities, the continuous thread of the instituon began with the founding of the American Literary, Scientific and Milary Academy by Capt. Alden Partridge in Norwich, Vt., in 1819. Capin Partridge had previously been commandant of the Military Academy t West Point, which may have accounted for his use of the word "Acadmy."

The accompanying illustrations show photostatic copies of the outside over page of the first small catalogue issued by the Academy (which beame Norwich University in 1834), and of the first page of the catalogue, oting the opening of the institution "at Norwich, in the State of Vermont, n the first Monday of September last (1820)." It will be noted that the atalogue is dated 1821. It should also be noted that the curriculum decribed on the first page includes courses in surveying and leveling, meanics, hydrostatics, topography, and "Civil Engineering, including the onstruction of roads, canals, locks, and bridges."

Records show that some twenty young men, who later became wellnown civil engineers, received their early civil engineering training at ne Academy during the period 1820-1825. Two of these graduates—foncure Robinson and Alfred Wingate Craven, both class of 1824—were rominent in the establishment of the ASCE. One of the Committee of



PROSPECTUS

OF THE

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CAPT. PARTRIDGE begs leave respectfully to inform the American public, that the above mentioned institution was opened, under his immediate direction and superintendance, at Norwich, in the State of Vermont, on the first Monday of September last. The course of education at this seminary will embrace the following branches of literature, science, and practical instruction, viz. the Latin, Greek, Hebrew, French, and English languages, Arithmetic, the construction and use of Logarithms, Algebra, Geometry, Plane and Spherical Trigonometry, Planometry, Stereometry, Mensuration of heights and distances by Trigonometry, and also Geometrically, practical Geometry generally, including particularly Surveying and Levelling, Conic Sections, the use of the Barometer, with its application to measuring the altitudes of mountains and other eminences, Mechanics, Hydrostatics, the elements of Chymistry and Electricity, Optics, Astronomy, Navigation, Geography, including the use of Maps and the Globes; Composition, Logic, History, Ethics, the elements of Natural and Political Law, the Law of Nations, Military Law, the Constitution of the United States, and of the States severally, Metaphysics; Agriculture, Permanent and Field Fortification, Field Engineering, generally, the construction of Marine Batteries, Artillery duty, the principles of Gunnery, a complete course of Military Tactics, the attack and defence of fortified places, Castrametation, ancient Fortification, the ancient modes of attacking and defending fortified places, the ancient Tactics, particularly those of the Greeks and Romans, with a description of the organization and discipline of the phalanx and legion; Book-Keeping, Music, Fencing, Military Drawing, Topography, Civil Engineering, including the construction of Roads, Canals, Locks, and Bridges; Architecture. In addition to the foregoing, the students will be regularly and correctly instructed in the elementary school of the soldier, and also in those of the company and battalion; they will likewise be taught the regular formation of military parades; the turning off, mounting, and relieving guards and sentinels; the duties of officers of the guard, officers of the day, and adjutants; the making out correctly the different descriptions of military reports; in fine, all the duties incident to the field or garrison. The military exercises and duties will be so arranged as not to occupy any of the time that would otherwise be devoted to study; they will be at-

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1821.

PHOTOSTATIC COPIES OF 1821 Norwich University Catalogue show (left) first cov page and prospectus of available courses, including civil engineering and allied subjec

Seventeen that met in Franklin Institute, Philadelphia, in April 1839, discuss the establishment of the Society, Mr. Robinson was also one the first group of five Honorary Members of ASCE, having been elect in 1853. Mr. Craven presided at the organization meeting of the ASC which was held in his office in New York City in November 1852, and lat became its President.

Though Norwich University was graduating men in civil engineeri in the period 1820 to 1825, Rensselaer Polytechnic Institute, the institutio chronologically nearest to it in point of teaching civil engineering, dates i beginning in 1824, with classes starting in 1825, according to its own hi tory *(The History of Rensselaer Polytechnic Institute* by Ricketts). Th volume states (page 79) that in its publications "in 1828 is the first appea ance of the term civil engineering." This was eight years after the begi ning of civil engineering teaching at the Academy, and by then the Acaden had an imposing list of civil engineering graduates.

Reprinted from "Civil Engineering," May 1950.

Books of Special Interest to Engineers

Engineering Economy

H. G. Thuesen is the author of *Engineering Economy*, published by Prentice-Hall which is deserving of special attention. The author points out that engineers have a responsibility to themselves and to their profession to accept a creative role.

"There are those, and some are engineers," says Mr. Thuesen, "who feel that the engineer should restrict himself to the consideration of the physical and leave the humanistic and the economic aspects of engineering to others; some would not even consider these aspects as coming under engineering. This viewpoint may arise in part because those who take pleasure in revealing and applying the well-ordered certainties of nature find it difficult to adjust their thinking to consider the vagaries of people.

"Now that economic factors are the strategic consideration in many, if not most, engineering activities, engineering practice may be either responsive or creative. If the engineer takes the attitude that he should restrict himself to the physical, he is likely to find that the initiative for the application of engineering has passed to those who will consider the economic factors. Thus others propose and determine the feasibility of undertakings from a social or profit standpoint and call upon the engineer only for solution of physical details.

"The engineer who acts in a responsive manner fails to accept responsibility. Although his position leaves him relatively free from criticism, he gains his freedom at the expense of applying engineering in ways and to situations over which he has little control, and at the expense of recognition and prestige. In many ways he is more a technician than a professional man. A technician has been defined by Sir Richard Livingston as a man who understands everything about his job except its ultimate purpose and its place in the order of the universe. Responsive engineering is a distinct hindrance to the development of the engineering profession.

"The creative engineer, on the other hand, not only seeks to overcome physical limitations, but also initiates, proposes, and accepts responsibility for the success of projects involving economic and human factors. The general acceptance of the viewpoint of creative engineering would extend the usefulness of engineering and might be expected to avoid many misapplications.

"Engineers in any capacity have an opportunity to consider human and economic factors in their work. The machine designer may design machines that can be operated with less fatigue. The highway builder may build for greater durability and safety. The engineer can use his influence to see that public works are planned, built, and operated in conformity with good engineering practice. An opinion frequently voiced by engineers is that the cost of selling products is excessive. At least a partial remedy

for this situation is for engineers to assume the responsibility for creating products with built-in sales appeal.

"An engineer with a creative outlook might conceive of reclaiming a land area and proceed to demonstrate the worth of this proposal by securing the necessary capital, doing the necessary engineering and construction work, and finally, placing the reclaimed area in the hands of farmers for the profit of both the farmers and himself. In face of a similar opportunity an engineer with a responsive outlook would prefer to wait until promoters who have seen the promise in prospects for an undertaking employed him to do the engineering work.

"Many engineers are now chosen for executive positions in business and industrial firms. Those who aspire to such positions must realize that creativeness is an important requirement.

"Engineering is an emerging profession. People have great confidence in the integrity and ability of engineers. Perhaps nothing will enhance the prestige of the individual engineer and the profession of engineerinng more than the acceptance of a creative role."

Mathematics for Engineers

3rd edition

Richard Dull, and the late Raymond Dull*

The new third edition of Dull and Dull's "Mathematics for Engineers will be ready for distribution in August. This excellent book is designed to serve as a one-volume reference library on a wide range of mathematical subjects. The development of various advanced mathematical theories are discussed in practical terms.

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Another new chapter, on Differential Equations, supplies a number of illustrative examples that show how to recognize and solve the types of these equations that occur most frequently in engineerinng. A systematic numerical method, one that has been successfully applied to a number of problems in gas flow and machinery dynamics, is also presented, along with illustrative examples and computations.

Considerable space has been given to the chapter on trigonometric functions, showing geometrical relationship of the circular functions, sum and difference of two angles, etc., to provide a clearer conception of these frequently-used relationships.

Engineers who have found Dull's Mathematics for Engineers a

*822 pages. Illustrated. $7.50. McGraw-Hill Book Co.

valuable book, will want a copy of this new revised third edition, edited by the late Raymond Dull and his son, Richard Dull. Mr. Dull is a member of the American Association of Engineers, and we are glad to recommend his new book.

New Issue of ECPD Guidance Manual Published

A guidance manual intended for engineers who are aiding young men interested in the engineering profession has been published by Engineers' Council for Professional Development. The 15-page pamphlet, prepared by the ECPD Guidance Committee, urges members of local engineering societies and sections and chapters of national engineering societies to establish guidance committees to aid high school pupils to determine whether they are qualified for careers in engineering. The present critical engineering manpower shortage emphasizes the need for guidance of the type indicated in this manual.

The manual explains briefly how to organize advisory committees and how to select committee members. The manual contains suggestions for working with high schools and secondary school students and lists aids especially useful in counseling high school boys.

The guidance manual is supplemented by an appendix, "Shall I Study Engineering?" which is a questionnaire to be filled out by the student for use of the engineer who is advising him.

The ECPD Guidance Committee has as its chairman, Willis F. Thompson, vice-president and chief mechanical engineer, Westcott and Mapes, New Haven, Conn.

Copies of the manual with questionnaire may be obtained from ECPD, 29 West 39th Street, New York 18, N.Y. Price of combination, 20 cents. Cost of manual purchased separately, 15 cents. The price of the questionnaire, ten cents. A deduction of 25 per cent for purchases of 25 or more is allowed.

Refresher Notes for Professional Engineers License Examination

By John D. Constance. 1950 edition

The complete bound lectures of a performance-tested refresher course given by the author under the sponsorship of the Metropolitan Section of the American Society of Mechanical Engineers in New York City. Subject matter includes hydraulics: stream flow, flow in pipes, hydraulic power and machinery; thermodynamics: heat transfer, boilers, prime movers and power equipment, behavior of gases and vapors, combustion, refrigeration; machine design: mechanical movements, stresses in machine parts, kinematics, energy transformations. Over 200 problems with solutions from past examinations. Paper, size 8½ x 11 inches, $4.50.

CHEMICAL WHO'S WHO

(THIRD EDITION—1951)

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News Items

Chaffey College Chapter

During the school year, the boys have ad a two-day field trip out into the esert regions. They visited the $60,-00,000 installation of the American Pot-sh and Chemical Corporation at Trona, cated on Searles Lake, a dry lake, bulously valuable for the vast amounts many chemicals present. A visit to e Desert Museum and a tour of the ellow Aster mine was part of this 00-mile trip.

C.S.B.E.E. to Meet at Boston in October

The National Council of State Boards Engineering Examiners will hold its irtieth annual meeting at Boston, lass., on October 21, 22, 23, and 24, Ho-l Statler. The program of the annual eeting will follow the same pattern sed in the past except that there will a sight-seeing tour on Sunday after-oon and a conference of state board ecretaries Sunday evening.

Arthur Richards, Executive Engineer, archmont, New York, and past presi-ent of the American Association of En-neers, will be the official representa-ve of the Association.

The Engineers' Council for Profes-onal Development will hold its annual eeting at Boston on October 19 and 20 nd the Annual Convention of the Amer-an Society of Civil Engineers will be eld in New York City on October 22 rough October 25.

Registration Notes

Alaska

A bill amending the Act relating to the gistration of professional engineers nd architects has been passed by the gislature of Alaska. Principal features clude: annual license fee changed om $25.00 to $10.00. Board is author-ed to provide for the registration of ngineer-specialists." Applicants will authorized to practice professional gineering "only in the field or fields in hich registered." Provision has been ade for the certification of engineers-training and architects-in-training th the requirement that they shall pay annual fee of $10.00 during the time such certificate is in effect. Upon the payment of a fee of $20.00 the board may register registrants of other states and engineers certified by the National Bureau of Engineering Registration who meet the requirements of the amended act. The non-resident permit fee of $250.00 required by the old law has been discontinued. When two or more individuals practice as a partnership, each individual is required to register separately.

Colorado

An Engineers' Registration Act has been enacted in Colorado as a substitute for the previous law. It became effective on March 29, 1951. The new law is patterned after the Model Registration Law for Professional Engineers and Land Surveyors.

New York Fees

A number of amendments of the Engineers Registration Law in New York State have been enacted during the year. The fee for Professional Engineer licensure has been reduced from $25 to $20. Fee for biennial renewal registration has been increased from $2 to $5. Fee for preliminary examinations remains at $15. Engineers-in-training will pay $5 to take the final examination. Cost of re-examination in one or more parts of the written examination will now be $5.

Bakersfield College Chapter

A number of the student members at Bakersfield have entered the Service of Uncle Sam, but the boys who are still in college are carrying on the activities of the group admirably. During the year they held their annual steak bake, a bowling match, sponsored and campaigned for a girl for the football queen at Homecoming, and their "luscious" candidate won. On the front cover of this issue appears a photograph of the awarding of a turkey to the winner at one of their meetings.

Edwin M. Hemerling is adviser of the group, and keeping the boys enthused and active during these rather uncertain days.

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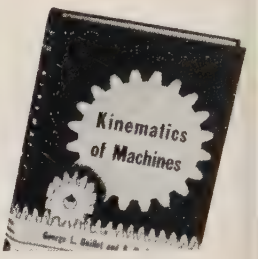

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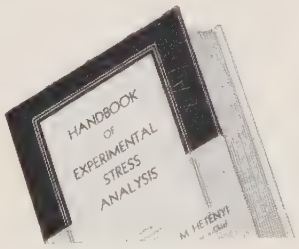

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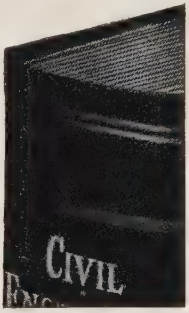

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Steam Turbines and Their Cycles, J. Kenneth Salisbury, General Electric Co. John Wiley and Sons. $9.00.

In his book, the author presents the essentials of design of steam turbines in thoroughly digestible terms devoid of unnecessary abstract theory, thus giving a crystal-clear treatment of steam turbines for users and manufacturers of steam turbines, designers of power plant cycles and turbines, and test engineers in power plants. The book is well illustrated and the practical problems at the end of each chapter will be found most helpful.

Alternating Current Fundamentals, Joseph J. DeFrance, B.S., E.E., Head, Dept. El. Tech., N.Y. State Inst. of Applied Arts and Sciences. Prentice-Hall.

A comprehensive textbook treating basic AC concepts in full detail, written in simple, conversational English. Illustrative problems are provided for all mathematics sections and the subject of mathematics is held down to a bare minimum. A book with a fresh approach to this important subject.

lectromagnetic Fields Theory and Application, Vol. 1: Mapping of Fields. Ernst Weber, Prof. E.E., Polytechnic Inst., Brooklyn. John Wiley & Sons. $10.00.

Mapping of Fields presents all the different means of obtaining electric, magetic and any other field distributions iat can be derived from potential funcons. The book presents systematically ie important basic relations and the nalytical, experimental, graphical and umerical methods of solving static field roblems. Designed also to serve as a andbook by the engineer or physicist ho is called upon to solve a field probem.

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asic Electrical Measurements, by M. B. Stout, Prof., El. Engrg., Univ. of Mich. Prentice-Hall. $7.75.

A well prepared book on a vital subect. Selection of material for a text in iis field is difficult, but the authors ave attempted to select methods that re most important and most frequently sed in present-day practice. Some of ie older ways of measuring resistance ave been dropped. Problems are introuced throughout the text as an imporint part of the study of measuring rocesses.

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ynamic Economy. Harold G. Moulton, with the collaboration of Frank Palmer. Brookings Institution. $2.00.

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lectric Illumination, 2nd ed. John O. Kraehenbuehl, Prof., El. Engrg., Univ. of Illinois. John Wiley & Sons. $8.00.

The author presents the principles nderlying the specification and design electrical lighting for commercial and dustrial buildings in a well organized anner. The book stresses the essentials an adequate and safe lighting sysm, and incorporates the changes and developments that have taken place since the first edition was published. Some important new material has been added.

Electric Circuits for Engineers. Edward K. Kraybill, Assist. Prof., El. Engrg., Duke Univ. MacMillan Company. $3.85.

In this book a broad picture of steady-state electric circuit theory is presented by the logical combination of alternating-current and direct-current relationships into an integrated and unified whole. A working knowledge of elementary differential and integral calculus and physics are essential for adequate comprehension of the circuit theory.

Introduction to Industrial Electronics. R. Ralph Benedict, Prof., El. Engrg., Univ. of Wis. Prentice-Hall, Inc. $6.35.

Intended to provide an introductory, but fundamental, survey of industrial applications of electronic devices, from a description of the basic tubes and their behavior through a treatment of elementary circuits and typical applications. The text makes use of approximate methods of calculation and graphical analysis where feasible, and thus avoids the use of the advanced mathematical methods. Some elementary calculus is employed. The needs of the non-electrical engineering student have been kept in mind, but a considerable portion of the material is also suitable for electrical engineering students.

Aerodynamics of Supersonic Flight, Alan Pope, Danial Guggenheim School of Aeronautics, Georgia Inst. of Tech. Pitman Publishing Corp. $4.00.

An elementary course aimed to introduce the student to the field of supersonics. The material is nonthermodynamic as far as possible, largely an assembly of previously presented data reduced to a lower level, frequently in novel form, with many numerical examples.

Technical Drafting Essentials, Warren J. Luzadder, Assoc. Prof., Engrg. Drawing, Purdue Univ. Prentice-Hall, Inc. $4.00.

For vocational and technical students, prepared to fulfill the need for a text in the technical field that will present the basic fundamentals of engineering drafting in accordance with sound pedagogy. Portions of the material have been taken from the author's larger text "Fundamentals of Engineering Drawing."

The Nomogram, 4th ed. H. J. Allcock, J. Reginald Jones, revised by J. G. L. Michel, Math. Div., National Physical Laboratory. Pitman Publishing Corp. $3.75.

A condensed treatment of the wider aspects of Nomography. The text deals with the mathematical relationship between the Intersection and Alignment Nomograms on the basis of duality.

Airplane Aerodynamics, Daniel O. Dommasch, Sydney S. Sherby and Thomas F. Connolly. Pitman Publishing Corp. $6.50.

This book is designed for students having a background in college physics, mathematics, calculus, mechanics, and dynamics, and its fundamental purpose is to create an understanding of the "how" and "why" of modern aerodynamics. Many illustrative examples and problems for assignment have been prepared and many of the answers are given in the text. Although emphasis has been placed on high-speed flight and on modern developments, understanding of fundamentals has not been sacrified. A good book on the subject it treats.

Alternating Current Circuits, 3rd ed. Russell M. Kerchner, Prof. El. Engrg., Kansas State College, and George F. Corcoran, Prof. and Chairman, El. Engrg. Dept., Univ. of Maryland. John Wiley & Sons. $5.50.

A number of changes and additions of importance to students majoring in either power or communication work, make the new third edition an excellent text. The book covers thoroughly the theory and practice of alternating current circuits, with particular emphasis on fundamentals. All symbols are revised to conform to Asa standards.

Bob Clifton, Jungle Traveler. Doc Hogue. Henry Holt and Co. $2.50.

A fascinating African Jungle story, by a civil engineer, member of the American Association of Engineers, who has lived in Africa for extended periods of time, and can therefore write with authority and from actual experience. Dock takes to writing like a duck takes to water and because of his literary talent all of his books are easy to read and delightful entertainment. Get a copy. You will be thrilled with the many

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Mechanics of Materials, Harry D. Conway, Prof., Dept. of Engrg. Mechanics, Cornell University. Prentice-Hall, Inc. $6.35.

In his book, Prof. Conway has presented a valuable first course in mechanics of materials. Care has been taken to make the text flexible enough to meet the individual requirements of instructors and curricula. Especially valuable are those subjects ordinarily omitted in a first course in mechanics of materials, such as "thick cylinders." The book is well illustrated.

Highway Research Board Report. National Research Council Report 11-B. $.90.

Surface Drainage is the title of this interesting progress report sponsored by the Board's committee under the chairmanship of Carl F. Izzard. Latest Developments and the status of work on certain hydraulic and hydrologic research, within the U.S. is described.

Rudiments of Mathematical Physics. James Bain, B.Sc., M.I.C.E.

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Industrial executives and supervisors will find this book helpful as it gives tested methods for improving efficiency, simplifying procedures, and reducing costs in inspection departments. All modern equipment is discussed. Written from the management viewpoint.

Warm Air Heating and Winter Air Conditioning, by John W. Norris, Pres., Lennox Furnace Co. 2nd ed. McGraw-Hill Book Co. $6.50.

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Elementary Theory and Design of Flexural Members, by Jamison Vawter and James G. Clark, John Wiley & Sons. $4.00.

Presents the basic theory of flexure as applied to common structural materials . . . steel, timber, and concrete. An excellent textbook prepared by men experienced and well versed in the subject treated. Intended as a beginning course in design as taught by Profe sors Vawter and Clark at the Universi of Illinois. The book is also suitab for a single course for non-civil eng neers.

Elements of Oil Reservoir Engineerin by Sylvain J. Pirson, Special Researc Associate, Stanolind Oil and Gas C McGraw-Hill Book Co. $6.50.

A graduate-level text for petroleu engineers, this book develops and c ordinates the principles which gover the behavior of geological petroleu reservoirs when placed under protecti during their primary phase and durin the application of external sources energy as practiced in secondary reco ering operations. The discussion d velops the concepts of three fundament production processes—water, segreg tion, and depletion drives, which m operate singly or in combination.

Industrial Instrumentation, by Don P. Eckman, College of Engineerin Cornell University Consultant, Co flow Corporation. John Wiley & So Inc. Price $5.00.

The book covers and reviews t measurement methods employed in i dustrial processing and manufacturin Emphasis is given to the method rath than to the mechanism. The book co tains eleven chapters and the author h covered the instrumentation field ve thoroughly. There is an appendix co taining a number of well selected table An important book for engineers esp cially in the process field.

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namic Motion and Time Study, James . Gillespie, Management Consultant, Chemical Publishing Co. $3.75.

Here's a new book by Gillespie with a v approach to the study of motion and e which has been adopted in many ustries for increasing workman ef- ency. In this book, for the first time, rk activity is related to work psy- ology. New and modern principles of tion study have been set up.

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ermodynamics of Fluid Flow, New- an A. Hall, Prof. M.E., Univ. of Minn. Prentice-Hall, Inc. $7.35.

The book provides an introduction to combined field: the thermodynamics fluid flow. Because of rapid changes the field, the emphasis is on theory h examples to demonstrate its appli- on. Fluid flow problems are handled er two main assumptions: that the v is steady and that the flow is one- ensional. A good book.

Behavior of Engineering Metals, . W. Gillett, Battelle Memorial In- itute. John Wiley & Sons. $6.50.

he author intended his book to help e who are not metallurgists but who icipate in the selection of metals and ys for engineering uses. As the num- of metallic materials and the meth- of preparing them has increased, se- ng the right metal or alloy to fit a n use is complex. Well written, and rmative.

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man-English Technical and Engi- ering Dictionary, Louis De Vries, rofessor of Modern Languages, Iowa ate College. 1st ed. 1950. McGraw- ill Book Co. $20.00.

his is truly a monumental work, pre- ing a compendium of more than 00 entries, including glossaries of words not contained in any other ication. This new dictionary is the uct of the last ten years, years that witnesed revolutionary advances in neering and technology, with their y additions to technical nomencla-

German-English and English-German Dictionary for Scientists, O. W. Leibiger and I. S. Leibiger, 1st ed. J. W. Edwards. $8.00.

This 756-page bilingual dictionary records the vocabulary of every field in the sciences especially those of chemistry and physics. The book is the result of 25 years of research work and translation activities on the part of author-scientists and contains almost 90,000 entries. Most of the words have three types of synonyms: the older scientific expression, the arian scientific terminology as accepted by the German prewar government, and the most recent term, acceptable to the modern scientist. Almost indispensable for any German-speaking scientist or technician.

Servomechanisms and Regulating System Design, Vol. 1, Harold Chestnut and Robert W. Mayer, Aeronautics and Ordnance Systems, Divisions of General Electric Company. John Wiley and Sons. $7.75.

Adapted to the needs of engineers and engineering students who have not had previous training or experience in the field of closed-loop control systems. The authors have based the material on their own experience and that of other General Electric Company engineers in designing control systems and regulators for the armed services and for industry. Chapters 7 through 9 describe closed-loop control system elements, operation, performance, and methods of analysis. An excellent book on the subject it treats.

Long Beach

The March 15th meeting of the chapter was held at the University Club. Color movies on the construction of the U. N. Secretariat Building and a discussion of C. M. Corbit, Jr., district engineer A.I.S.C., occupied the evening. Meredith W. Chatten is president and Horace C. Sherer vice president. N. W. Dean serves as treasurer and Robert E. Latham, secretary.

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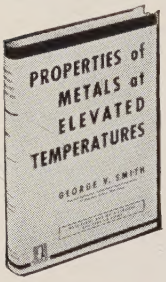

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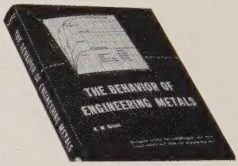

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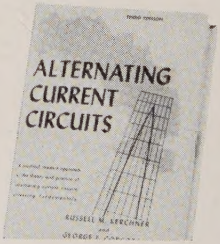

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